ENERGY SCIENCE

Geology and chemistry are major fields of science in the study of energy. The U.S. Geological Survey's (USGS) Energy Resources Program has geologists that specialize in petroleum and coal research. Geologists work with a variety of other specialists that include geophysicists, sedimentologists, geochemists and other scientists.

Non-renewable energy sources are used to make most electricity. In the United States, coal is the number one energy source for generating electricity. Even if we were able to meet all our electricity needs from renewable energy sources, we still could not live without oil, gas, and coal. Oil, gas, and coal are the essential raw materials needed for many common products in the world such as: plastics, paints, fertilizer, ink, dyes, x-ray film, medicines, tar, synthetic fibers, crayons, eyeglasses, cell phones, inkjet cartridges, tires, and more!

Molten rock (magma) associated with active volcanoes and deep in the Earth's crust provides the heat needed to create most high-temperature geothermal resources that have potential for electricity generation. USGS geologists and volcanologists are working to answer the question, "Can the Earth's natural heat be usefully harnessed?"

ENERGY AND ENVIRONMENT: FINDING A BALANCE

The development of energy resources provides jobs for many people and contributes to our Nation's economic health. Removing coal, oil, and natural gas from the Earth, however, can affect the environment. Most geologic energy resources contain materials that can harm the environment (and people), especially if these materials are released in large amounts. These harmful effects can last for several years or longer. The USGS studies ways to minimize effects on the environment from energy resources.

RECYCLING AND ENERGY

Aluminum used for cans is a very lightweight, versatile metal that is made from a kind of clay called bauxite. It takes huge amounts of electricity to make aluminum from bauxite.

Today, it takes less electricity to produce a pound of aluminum than it did 25 years ago, mainly because of recycling. Using recycled aluminum requires about 95 percent less energy than converting bauxite to metal. Recycling cans also saves tons of greenhouse gases that are produced to make new cans from virgin materials.

The U.S. uses more aluminum than any other country, mostly in beverage cans, with a 45 percent recycling rate. Currently, there is a decline in recycling. In fact we are at the lowest rate in 20 years according to the Container Recycling Institute. This becomes a huge energy waste. THINK, **CAN** *DO!*

The World War I Lever Act of 1917 led to the creation of the United States Fuel Administration that implemented conserving and increasing the production of coal and gasoline in the war effort. The new agency funded posters targeting home-front efforts that promoted various conservation efforts.

Library of Congress

Even today, choosing to conserve energy can help communities promote better stewardship of natural resources, leading to a more sustainable society.

Visit the USGS Energy Resources Program at:
http://energy.usgs.gov/

USGS
science for a changing world

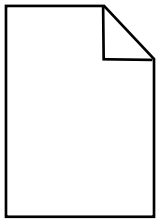
ENERGY IN A NUTSHELL

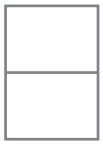
U.S. Department of the Interior
U.S. Geological Survey

Folding Instructions

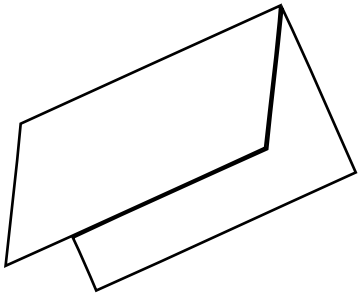
1. Start with 8.5 x 11 piece of paper of your print-out of, "Energy in a Nutshell."

PDF printing note:
Print at 100%
(DO **NOT** print fit to page)

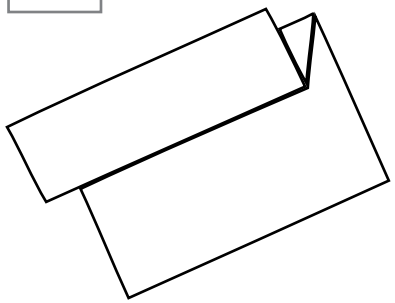




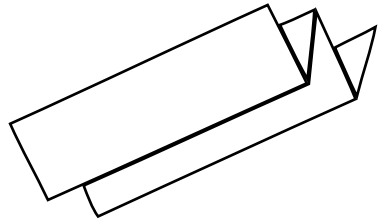
2. Fold in half shortwise, printed side out.

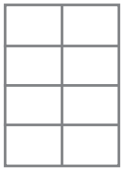


3. Fold back one edge to the middle fold.

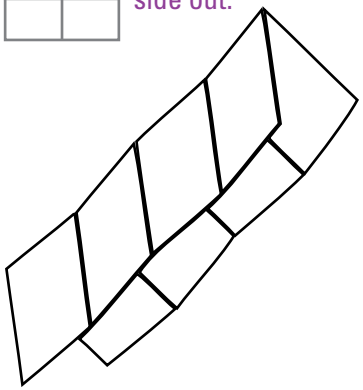


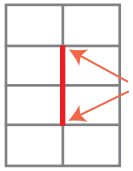
4. Fold back the other edge again, to the middle fold.





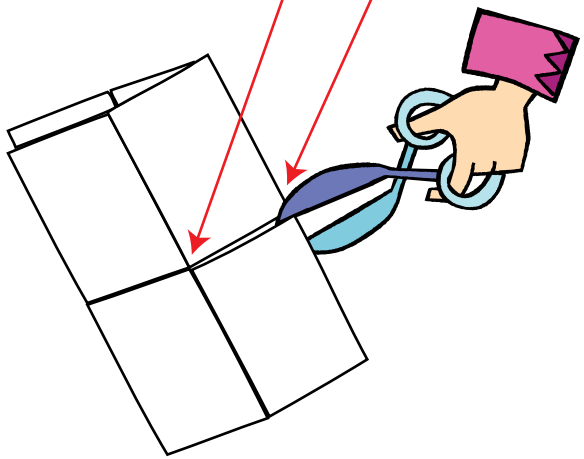
5. After unfolding the sheet fold longwise, printed side out.

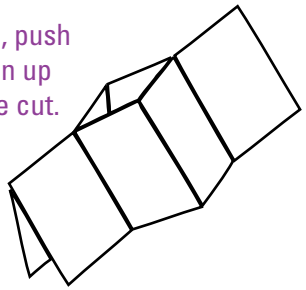




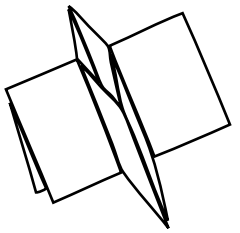
6. Refold shortwise, then use scissors to ...

Cut from
here to here

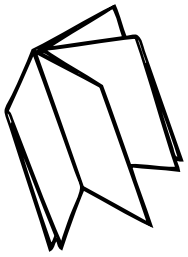




7. Holding each end, push to the middle to open up where you made the cut.



8. Push all the way in.



9. Fold the left edge over to create the cover. Now it's a book!